

AMOS

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alpha micro

Service, Support and Education

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3.2.10 Hash Total Generation

Over the years we have received numerous requests for the "hash code" algorithm used by the MAP and DIR commands. This has been supplied in some specific cases, but for the most part we have not made it generally available. This has been for a couple reasons.

First, the algorithm is not a particularly good one. Better, general purpose hashes exist that have a lower probability of error. Though we have not seen two identical hash totals for different files, we have seen the same first three numbers show up on different versions of the same program.

Secondly, the algorithm is not very speedy nor efficient. It was originally designed for the MAP program which scanned modules located in main memory, where a two-pass algorithm did not impact performance. For applications using files, the two passes requires substantial extra disk activity. The algorithm also took

advantage of some quirks of the 16-bit registers of the WD-16 processor, making it a bit tedious to code on the 68000.

However, we recognize that there are applications for this technique that benefit far more from the compatibility with MAP and DIR than they might from a more efficient algorithm. For this reason, we are publishing the attached two routines which demonstrate both the generation and the display of the hash code. It is not expected that either can be used exactly as-is, but they should be sufficient as a starting point.

Please file this information such that it can be easily retrieved for future needs. If you feel this information would benefit any of your customers/sub-dealers, please make sure that the information in this article accompanies the listings by way of a disclaimer.

```

;HASHIT          Routine to Generate Compatible Hash Codes
;
;Inputs:         A0      Indexes base of area in memory to hash
;               D2      Contains size of are to hash (in bytes)
;
;Outputs:        D3,D4   Binary hash
;
;Abstract:       This routine generates a 32-bit binary hash of the
;               are in memory indexed by A0. The hash code is
;               compatible with that used by MAP and DIR. The
;               basic idea is make two passes over the data,
;               accumulating a hash total as we go. This routine
;               is supplied for its compatibility value, not
;               because it is efficient! For hashing files, the
;               file must either first be FETCHed into memory, or
;               this routine must be modified to read the data
;               words in from the file insteaded of getting them
;               from memory.
;
;
;
HASHIT:  SAVE      D0,D2,A2          ; Save registers
        CLR       D3              ; Clear hash work registers
        CLR       D4              ;
        MOV       #2-1,D0         ; get pass counter (adjust
                                   ; for DBF)
10$:    MOV       A0,A2            ; use A2 to scan over words
20$:    MOVW      (A2)+,D1         ; get a data word
        CLR       D7              ; clear work register
        ADDW      D1,D3           ; combine data into hash
        ADDXW     D7,D4
        SUBW      D2,D4
        ADDXW     D7,D3
        ADDW      D3,D4
        ADDXW     D7,D3
        LSLW      D3
        ROXLW     D4
        ADDXW     D7,D3
        SOB       D2,20$         ; loop until end of module
        DBF       D0,10$         ; loop over data two times
        REST      D0,D2,A2       ; restore registers
        RTN                    ; return with hash in D3:D4

```

```

;PHASH          Routine to Print Compatible Hash Codes
;
;Inputs:        D3,D4      Contain 32-bit binary hash from HASHIT
;
;Outputs:       To terminal only
;
;Abstract:      This routine prints the 32-bit hash generated by
                  HASHIT in a form compatible with MAP and DIR. Note
                  that it forces all output to be in octal. While
                  this version only outputs to the terminal, a slight
                  modification of the flags on the OCVT calls could
                  easily place the output into a buffer or a file.

;
;
;PHASH:  SAVE      A0,D1,D3,D4          ; Save registers that we
                                           ; change
                                           ; index our JCB
        JOBIDX     A0                  ; save current radix &
        PUSHW      JOBTYP(A0)          ; other flags
                                           ; Force octal
        ANDW       #^C<J.HEX>,JOBTYP(A0) ; preclear our output
        CLR        D1                  ; register
                                           ; print the fingerprint
        MOVW       D4,D1               ; in the format of
                                           ; xxx-xxx-xxx-xxx
                                           ; force 3 digits
        OCVT       3,OT$TRM
        TYPE       <->
        SWAB       D1                  ; get high byte
        OCVT       3,OT$TRM
        TYPE       <->
        MOVW       D3,D1               ; get next word low byte
        OCVT       3,OT$TRM
        TYPE       <->
        SWAB       D1                  ; ...high byte
        OCVT       3,OT$TRM
        POPW       JOBTYP(A0)          ; restore radix
        REST       A0,D1,D3,D4         ; restore mod registers
        RTN

```

3.2.9 Patches to AMOS/L (Update #4)

Since the last notice (May '86) AMOS/L 1.3B(151) and AMOS/32 1.0(154) have been released and there have been patches to the versions of AlphaWRITE, AlphaCALC, MULTI and AlphaC.

Patches to the System Software

There are no new patches to AMOS/L Version 1.0(46) through 1.2A(106), therefore, those lists are not reprinted. The lists included are the four different versions of AMOS/L 1.3. They are organized according to the version of the LSYS.MON file; 1.3(123), 1.3I(125), 1.3A(125) and 1.3B(151). In addition, there are three patches against the AMOS/32 operating system 1.0(154) on the ISAM product. A list of those SPNs is included.

Special Purchase Software

There are fifteen patches against the special purchase software packages. Nine are for AlphaWRITE Version 1.2(196). Four patches against AlphaCALC Version 1.2(150). One patch is for MULTI and one for AlphaC.

What they Fix

Beginning with this update, a new list is provided that lists each of the new SPNs that have been issued (since the last article) with a description of the problem that it corrects or enhancement that it provides.

Fix Description SPN-181 to SPN-215

SPN #	Module	Purpose
181	WRT100.OVR	Corrects a problem adding/editing Margin blocks within a footnote.
182	WRITE	1) Avoids data loss that would occasionally occur when text is added to the end of a footnote. 2) Avoids occasional addition of TABS during formatting in the presence of hyphenated words. 3) Allows .OVR files to be placed in system memory. 4) Will no longer allow the RUBOUT key to delete a footnote information block (^D will still allow it).
183	WRT170.OVR	Corrects problem with proportional spacing on the AM-302 when justifying a line longer than normal.
184	WRT200.OVR	Corrects a problem with Spell checker when it encountered a word it did not recognize at the end of a file and without a hard carriage return.
185	CALC	Corrects a problem with the IF statement when used with EXTCELL, NPV, LOOKUP and REG functions.
186	FIX420	Corrects the Bitmap Size used for the 70 Megabyte Fujitsu drive that runs under the control of the Xebec (1.3I and 1.3A).
187	XXXCRT	Increase buffer size allowing the certification of the 70 Megabyte Fujitsu drives (1.3I and 1.3A).
188	AMOSL.MON	Corrects a long standing problem previously masked by the interface drivers. Problem materialized with the introduction of the new AM-355 and AM-350 terminal interface boards (1.3B).
191	WRT170.OVR	Corrects a problem in printing one page at a time. Also corrects a problem with proportional spacing when both /TITLE and /FOOTER lines are used.
192	WRT150.OVR	Corrects a problem with premature page breaks when using /CPAGE.
193	WINDOW.TDV	Corrects a problem handling TCRT 129 calls.

SPN #	Module	Purpose
194	AM62A.TDV	Corrects a problem handling TCRT 129 calls (all 1.3 releases and AlphaWRITE).
195	CALC	1) SORT command: For cell references beyond 128, CALC would report an error and destroy some registers, occasionally entering an endless loop. 2) The Arithmetic Stack was increased avoid an occasion system lockup. 3) Corrects a problem with computation of EXTCELL functions not on the current screen at the time a SAVE or FINISH is performed.
196	ALC270.OVR	Corrects a problem with PACK when used on an empty file.
198	CRT415	Use 32 bit addressing for compatibility with the drivers which were upgraded for the AM-2000 series machines (1.3B)
202	AM350M.MIC	Corrects a problem with Terminal/System lock up (1.3B).
203	WRITE	Corrects a problem with footnotes being lost when information blocks are placed in front of a footnote block.
204	ISAM.SYS	Corrects a problem handling odd-byte key sizes with the ISAM 7 call (1.3B)
205	ISMBLD	Corrects a problem handling odd-byte key sizes (1.3B).
206	ISMDMP	Corrects a problem handling odd-byte key sizes (1.3B).
207	ISAM.SYS	Corrects a problem finding the IDA file when opening a file for INDEXED'EXCLUSIVE for another device (1.3B).
208	ISMBLD	Corrects a problem in finding the IDA file when used from another device (1.3B).
209	ISMDMP	Corrects a problem in finding the IDA file when used from another device (1.3B).
210	ISAM.SYS	Corrects a problem finding the IDA file when opening a file for INDEXED'EXCLUSIVE for another device (1.0(154)).
211	ISMBLD	Corrects a problem in finding the IDA file when used from another device (1.0(154)).
212	ISMDMP	Corrects a problem in finding the IDA file when used from another device (1.0(154)).

SPN #	Module	Purpose
213	WRT150.OVR	Avoids printing some footnotes twice when the "B" option is used.
214	M681.OVR	Corrects a problem handling the NTYPE call.
215	CALC	Corrects a rounding display problem where a "5" would occasionally fail to cause "rounding up".

All SPN's on AMOSL

SPN Program	OHASH	NHASH	Mntr Ver	Prg Ver
001 PTCH	271-514-416-143	161-516-311-700	1.0(46)	1.0(103)-1
002 AMOSL.MON	N/A	N/A	1.0(46)	1.0(46)-1
003 RUN	777-573-136-322	463-433-264-332	1.0(46)-1	1.0(129)-1
004 SET	664-311-727-723	627-623-510-047	1.0(46)-1	1.0(103)-1
005 PRINT.LIT	553-743-536-055	343-556-742-165	1.0(46)-1	3.0(101)-1
006 WRMGEN	426-201-566-131	131-726-301-446	1.0(46)-1	1.0(103)-1
007 ISAM.SYS	474-353-157-552	666-371-263-570	1.0(46)-1	1.0(101)-1
008 ISMBLD	037-606-352-176	761-561-101-424	1.0(46)-1	1.0(100)-1
009 ISMDMP	727-677-374-230	043-734-425-771	1.0(46)-1	1.0(100)-1
010 DSKANA	354-362-620-245	271-634-161-712	1.0(46)-1	1.0(106)-1
011 ISAM.SYS	666-371-263-570	120-034-261-432	1.0A(46)-1	1.0(101)-2
012 ISMBLD	761-561-101-424	062-220-707-713	1.0A(46)-1	1.0(100)-2
013 ISMDMP	043-734-425-771	056-216-410-147	1.0A(46)-1	1.0(100)-2
014 LABEL	654-215-646-061	541-725-143-556	1.0A(46)-1	1.0(102)-1
015 VUE	654-033-112-146	657-617-565-711	1.0A(46)-1	2.6(106)-1
016 XEBDVR.DVR	101-662-730-215	401-645-375-776	1.0A(46)-1	N/A
017 XLOCK	177-434-431-557	656-375-776-171	1.0A(46)-1	1.0(100)-1
018 AMSORT.SYS	036-250-373-702	524-137-236-154	1.0A(46)-1	N/A
019 SORT	243-714-115-666	301-646-445-467	1.0A(46)-1	N/A
020 CRT420	417-537-607-775	617-561-016-302	1.0A(46)-1	1.0(105)-1
021 DSKPAK	111-516-100-312	730-273-105-440	1.0A(46)-1	1.0(102)-1
022 610DVR.DVR	150-030-102-354	506-147-246-122	1.0A(46)-1	N/A
023 RUN	463-433-264-332	764-025-003-550	1.0A(46)-1	1.0(129)-2
024 210DVR.DVR	253-706-772-141	145-500-061-500	1.0A(46)-1	N/A
025 SCNWLD.SYS	254-164-546-263	363-662-774-273	1.0A(46)-1	1.0(103)-1
026 CRT410	703-655-040-224	227-650-214-070	1.0A(46)-1	1.0(100)-1
027 TRM.DVR	244-020-036-252	762-007-741-447	1.0A(46)-1	N/A
028 RUN	764-025-003-550	401-543-366-362	1.0A(46)-1	1.0(129)-3
029 ISMBLD	062-220-707-713	176-136-305-446	1.0A(46)-1	1.0(100)-3
030 ISAM.SYS	120-034-261-432	700-273-345-570	1.0A(46)-1	1.0(101)-3
031 AMOSL.MON	N/A	N/A	1.0A(46)-1	1.0A(46)-2
032 AM100L ¹	456-273-565-707	436-251-570-265	1.0A(46)-2	N/A
033 AM120 ¹	523-543-535-623	503-405-363-766	1.0A(46)-2	N/A
034 PRINT.SBR	755-523-163-726	213-606-556-341	1.0A(46)-2	1.0(100)-1
035 SPOOL.SBR	720-135-113-726	033-502-302-020	1.0A(46)-2	1.0(100)-1
036 BASORT.SBR	556-267-442-171	744-003-712-301	1.0A(46)-2	1.0(101)-1
037 INPUT.SBR	245-522-723-433	634-273-122-140	1.0A(46)-2	1.0(100)-1
038 COPY	023-424-631-537	132-266-536-055	1.0A(46)-2	1.0(106)-1
039 FLOCK.SBR	351-570-311-662	440-073-715-727	1.0A(46)-2	1.0(100)-1
040 SET	627-623-510-047	674-135-244-360	1.0A(46)-2	1.0(103)-2
041 AM310 ¹	253-660-742-045	100-144-406-251	1.0A(46)-2	N/A
042 SPOOL.SBR	033-502-302-020	006-234-537-555	1.0A(46)-2	1.0(100)-2
043 ISAM.SYS	700-273-345-570	754-113-510-047	1.0B/A	1.0(101)-4
044 ISMBLD	176-136-305-446	025-776-342-310	1.0B/A	1.0(100)-4
045 AM60.TDV	600-317-512-353	156-260-164-274	1.0B/A	N/A
046 WRITE	123-722-307-446	444-047-043-572	1.0B/A	1.0(140)-1
047 WRTprt.OVR	653-621-507-441	046-252-105-674	1.0B/A	1.0(140)-1

SPN	Program	OHASH	NHASH	Mntr Ver	Prg Ver
048	WRTMRG.OVR	750-141-650-167	174-150-332-252	1.0B/A	1.0(140)-1
049	RUN	707-627-570-117	617-501-271-466	1.1/A	1.1(166)-1
050	WRITE	444-047-043-572	776-207-613-563	1.1/A	1.0(140)-2
051	SYSACT	165-722-335-406	425-717-220-252	1.1(68)	1.0(112)
052	WRITE	776-207-613-563	637-605-772-117	1.1(68)	1.0(140)
053	Used Internally				
054	COMPIL	666-373-272-346	246-134-043-740	1.1/A	1.1(166)-1
055	SYSACT	425-717-220-252	317-742-421-737	1.1(68)	1.1(112)-2
056	MTU ¹	625-431-621-467	452-211-721-517	1.1A(68)	N/A
057	VUE	657-617-565-711	711-503-321-502	1.0B/A	2.6(106)-2
058	Used Internally				
059	Used Internally				
060	Used Internally				
061	DSKDMP	472-145-451-425	105-642-502-141	1.1/A	1.0(101)-1
062	COMMON ¹	567-727-510-223	217-612-036-330	1.1A(68)	1.0(102)
063	Used Internally				
064	Used Internally				
065	ISMBLD	122-174-666-075	014-172-125-760	1.1/A	1.1(106)-1
066	ISMAMP	107-512-326-342	525-767-603-607	1.1/A	1.1(103)-1
067	ISAM.SYS	046-042-420-205	101-440-720-161	1.1/A	1.1(112)-1
068	AMSORT.SYS	524-137-236-154	256-312-204-312	1.0B/A	N/A
069	AMSORT.SYS	666-275-464-161	674-147-703-557	1.1/A	N/A
070	RUN	617-501-271-466	665-501-321-464	1.1/A	1.1(166)-2
071	STRSAV	752-331-543-521	623-745-470-143	1.1/A	1.0(103)-1
072	SUBMIT	322-164-705-721	313-676-107-436	1.1/A	1.1(101)-1
073	SUBMIT	164-310-404-063	475-627-633-673	1.0B/A	1.0(100)-1
074	Used Internally				
075	CALC	437-677-465-441	307-650-423-421	1.0B/1.1/A	1.0(111)-1
076	VCRRES	475-753-116-210	460-375-377-474	1.1/A	1.0(105)-1
077	VCRRES	160-324-614-303	460-233-210-152	1.0B/A	1.0(105)-1
078	AMOSL.MON	N/A	N/A	1.1(68)	1.1(68)-1
079	AMOSL.MON	N/A	N/A	1.1A(68)	1.1A(68)
080	Used Internally				
081	COPY	054-120-130-042	445-613-117-412	1.1/A-1	1.0(111)-1
082	Used Internally				
083	AMOSL.MON	N/A	N/A	1.1(68)-1	1.1(68)-2
084	AMOSL.MON	N/A	N/A	1.1A(68)-1	1.1A(68)-2
085	TXTFMT ²	203-474-611-473	724-355-012-256	1.1/A-2	1.0(107)-1
086	AMSORT.SYS	674-147-703-557	156-312-613-475	1.1/A-2	N/A
087	ISMBLD	014-172-125-760	516-025-535-471	1.1/A-2	1.1(106)-2
088	PRUN	174-306-447-537	625-551-606-337	1.1/A-2	1.0(105)-1
089	LOKSER.LOK	175-634-424-113	665-577-736-011	1.1/A-2	1.1(101)-1
090	LOAD	407-603-211-500	137-752-172-004	1.1/A-2	1.0(104)-1
091	AM1013 ¹	075-440-246-246	521-525-110-054	1.1/A-2	N/A
092	LOKGEN	517-701-407-437	753-403-472-351	1.1/A-2	1.1(100)-1
093	WRITE	450-047-564-375	204-150-674-145	1.0A	1.0A(140)-1
094	WRTprt.OVR	151-410-003-456	074-052-511-511	1.0A-1	1.0A(140)-1
095	LOKSER.LOK	665-577-736-011	473-635-065-402	1.1/A-2	1.1(101)-2
096	WRTMRG.OVR	706-265-533-773	756-055-077-730	1.0A-1	1.0A(140)-1
097	RUN	225-436-722-123	070-110-541-455	1.2	1.2(176)-1
098	ISAM.SYS	101-440-720-161	625-465-455-461	1.1/A-2	1.1(112)-2
099	ISMBLD	516-025-535-471	602-201-770-355	1.1/A-2	1.1(106)-3

SPN	Program	OHASH	NHASH	Mntr Ver	Prg Ver
100	LPR.M68 ¹	652-005-245-450	371-624-050-054	1.1/A-2/1.2	N/A
101	ISMDMP	525-767-603-607	707-635-240-226	1.1/A-2	1.1(103)-2
102	RUN	070-110-541-455	340-054-425-537	1.2	1.2(176)-2
103	RUN	665-501-321-464	075-512-664-147	1.1/1.1A	1.1(166)-3
104	ISAM.SYS	265-412-760-065	554-151-435-725	1.2	1.1(116)-1
105	ISMBLD	353-602-664-017	420-217-367-750	1.2	1.1(116)-1
106	ISMDMP	152-264-560-051	656-115-276-262	1.2	1.1(116)-1
107	PRINT.SBR	417-451-040-072	052-062-565-447	1.4B	1.0(102)-1
108	PRUN	625-551-606-337	661-605-050-362	1.0-1	1.0(105)-2
109	Used Internally				
110	AM6X.TDV	071-545-527-473	275-700-456-353	1.2	N/A
111	DSKPAK	130-312-230-356	033-714-622-257	1.2	2.0(106)-1
112	AM6X.TDV	071-545-527-473	217-620-734-325	1.2	N/A
113	WRT170.OVR	132-160-377-414	314-074-721-631	1.1	1.1(174)-1
114	TSKMAN.OVR	767-561-416-143	607-471-754-365	1.1/A	1.1(103)-1
115	TSKMAN.OVR	621-575-726-105	477-563-747-623	1.2/A	1.1(104)-1
116	XEBDVR.DVR	615-465-737-403	267-654-631-475	1.2A	N/A
117	COMPIL	366-250-072-362	456-013-675-605	1.2/A	1.2(176)-1
118	FLPWIN	116-246-512-361	365-546-654-371	1.2/A	1.2(103)-1
119	FIX420	350-132-111-620	765-465-057-702	1.2A	1.1(115)-1
120	TSKINI	303-502-422-323	226-322-604-057	1.1/A	1.1(103)-1
121	TSKINI	072-052-301-554	413-423-273-440	1.2/A	1.1(104)-1
122	INPUT.SBR	637-627-464-023	427-631-054-224	1.4B	1.0(102)-1
123	LOKSER.LOK	275-534-515-413	635-571-704-237	1.2/A	1.1(105)-1
124	CRT420	147-654-716-145	601-505-742-375	1.2A	1.1(115)-1
125	TOWS	741-603-035-542	241-770-512-015	1.2A	1.0(109)-1
126	AM1013 ¹	122-336-261-410	115-404-241-534	1.2A	N/A
127	CRT410	405-521-372-156	156-014-032-364	1.2/A	1.0(101)-1
128	FIX420	765-465-057-702	212-322-040-112	1.2A	1.1(115)-2
129	CRT420	601-505-742-375	617-751-650-003	1.2A	1.1(115)-2
130	Used internally				
131	Used internally				
132	WRITE	276-212-162-106	746-061-302-336	1.1	1.1(174)-1
133	WRT120.OVR	221-764-744-213	263-466-440-321	1.1	1.1(174)-1
134	ISMBLD	420-217-367-750	003-520-050-016	1.2/A	1.1(116)-2
135	ISAM.SYS	554-151-435-725	153-736-001-654	1.2/A	1.1(116)-2
136	CALC	052-326-016-112	457-465-012-050	1.1	1.1(134)-1
137	ISMDMP	656-115-276-262	655-731-516-273	1.2A	1.1(116)-2
138	ISMBLD	003-520-050-016	677-725-371-452	1.2/A	1.1(116)-3
139	Used internally				
140	Used internally				
141	Used internally				
142	Used internally				
143	Used internally				
144	Used internally				
145	Used internally				
146	Used internally				
147	AMOSL.MON ³	264-124-257-400	325-656-312-202	1.2(96)	1.2(96)-1
148	AMOSL.MON ³	213-542-054-220	473-431-067-576	1.2A(106)	1.2A(106)-1
149	WRT150.OVR	650-235-006-142	377-564-360-012	1.1	1.1(174)-1
150	AM62A.TDV	724-231-035-776	502-013-637-721	1.2A	N/A

SPN	Program	OHASH	NHASH	Mntr Ver	Prg Ver
151	CALC	457-465-012-050	713-747-035-572	Pre 1.3	1.1(134)-2
152	CALC	547-423-431-521	267-526-374-302	Post 1.3	1.1(134)-4
153	AM364L.IDV ⁴	N/A	N/A	1.3/I/A	N/A
154	AM316L.IDV ¹	606-363-744-317	153-750-603-747	1.3/I/A	N/A
155	CALC	713-747-035-572	374-274-101-506	Pre 1.3	1.1(134)-
156	CALC	267-526-374-302	605-765-145-442	Post 1.3	1.1(134)-5
157	WRT170.OVR	314-074-721-631	543-705-703-677	1.1	1.1(174)-2
158	WRT170.OVR	610-025-220-330	062-322-722-255	1.1A	1.1A(174)-1
159	WRT150.OVR	377-564-360-012	010-250-562-137	1.1	1.1(174)-2
160	WRT150.OVR	031-536-555-455	321-444-337-510	1.1A	1.1A(174)-1
161	AMOSL.MON ³	351-406-051-460	216-216-002-036	1.3(123)	1.3(123)-1
162	LOKGEN	760-047-614-213	750-151-463-751	1.3-1	1.1(108)-1
163	RUN	010-124-127-636	347-420-471-445	1.3-1/I/A	1.3(196)-1
164	WRITE	174-122-075-652	370-036-521-531	1.1A(174)	1.1A(174)-1
165	AM62.TDV ¹	224-076-342-244	244-242-267-774	1.3-1/I/A	N/A
166	WRT070.OVR	062-322-722-255	351-752-764-307	1.1A(174)-1	1.1A(174)-2
167	TRIT25.DVR	117-504-325-756	021-716-745-775	1.3-1/I/A	N/A
168	TRIT50.DVR	522-213-550-005	434-321-330-144	1.3-1/I/A	N/A
169	TRIT80.DVR	732-117-266-216	374-364-636-113	1.3-1/I/A	N/A
170	TRI300.DVR	343-760-645-677	415-413-147-754	1.3-1/I/A	N/A
171	RUN	347-420-471-445	302-120-265-574	1.3-1/I/A	1.3(196)-2
172	AMOSL.MON ³	216-216-002-036	366-350-202-240	1.3-2	1.3(123)-2
173	AMOSL.MON ³	056-150-360-104	771-447-340-042	1.3I(125)	1.3I(125)-1
174	AMOSL.MON ³	077-452-671-573	760-345-532-025	1.3A(125)	1.3A(125)-1
175	TXTFMT	676-327-505-745	300-056-332-140	All 1.3's	1.1(111)-1
176	Used internally				
177	SUBMIT	014-232-752-237	073-552-607-475	1.3-2/I/A-1	1.1(106)-1
178	Used internally				
179	PTCH	161-456-324-350	323-744-060-260	1.0(263)	2.0(112)-1
180	RUN	302-120-265-574	603-447-554-347	1.3-2/I/A-1	1.3(196)-3
181	WRT100.OVR	353-550-453-571	035-616-404-111	1.2(196)	1.2(196)
182	WRITE	742-011-322-026	715-401-136-260	1.2(196)	1.2(196)
183	WRT170.OVR	077-476-511-565	555-641-377-742	1.2(196)-1	1.2(196)-1
184	WRT200.OVR	603-461-357-442	206-032-620-055	1.2(196)-1	1.2(196)-1
185	CALC	440-063-607-601	547-423-535-521	1.2(150)	1.2(150)-1
186	FIX420	455-607-047-606	613-767-345-502	1.3I/A-1	1.1(122)-1
187	XXXCRT	602-007-325-446	707-617-326-140	1.3I/A	1.1(117)-1
188	AMOSL.MON	114-352-247-526	363-476-066-334	1.3B(151)	1.3B(151)-1
189	Used internally				
190	Used internally				
191	WRT170.OVR	555-641-377-742	364-306-153-410	1.2(196)	1.2(196)-2
192	WRT150.OVR	116-150-364-276	165-650-755-743	1.2(196)	1.2(196)-1
193	WINDOW.TDV	654-043-225-642	564-125-415-471	N/A	N/A
194	AM62A.M68	675-721-155-664	020-070-536-235	All 1.3's	N/A
195	CALC	547-423-535-521	527-441-574-227	1.2(150)-1	1.2(150)-2
196	ALC270.OVR	333-704-611-571	240-222-742-311	1.2(150)-2	1.2(150)-1
197	Used internally				
198	CRT415	771-651-351-636	621-735-323-732	1.3B(151)-1	1.0(105)-1
199	Used internally				
200	Used internally				
201	Used internally				
202	AM350M.MIC	441-565-546-033	145-404-752-327	1.3B(151)-1	N/A
203	WRITE	715-401-136-260	006-306-735-553	1.2(196)-1	1.2(196)-2
204	ISAM.SYS	165-620-170-054	543-737-617-777	1.3B(151)-1	1.1(124)-1
205	ISMBLD	310-300-365-416	362-136-436-145	1.3B(151)-1	1.1(124)-1

SPN	Program	OHASH	NHASH	Mntr Ver	Prg Ver
206	ISMDMP	251-676-374-126	115-630-252-334	1.3B(151)-1	1.1(124)-1
207	ISAM.SYS	543-737-617-777	610-223-175-410	1.3B(151)-1	1.1(124)-2
208	ISMBLD	362-136-436-145	141-560-574-157	1.3B(151)-1	1.1(124)-2
209	ISMDMP	115-630-252-334	107-622-766-267	1.3B(151)-1	1.1(124)-2
210	ISAM.SYS	605-735-410-155	110-366-132-274	1.0(154)	1.1(125)-1
211	ISMBLD	175-600-164-032	161-620-107-420	1.0(154)	1.1(125)-1
212	ISMDMP	602-103-223-536	074-066-662-113	1.0(154)	1.1(125)-1
213	WRT150.OVR	165-650-755-743	746-233-404-301	1.2(196)-2	1.2(196)-2
214	M681.OVR	600-277-222-240	123-402-234-006	1.0(263)	2.0(103)-1
215	CALC	527-441-574-227	264-102-714-177	1.2(150)-2	1.2(150)-3

- 1 These patches are changes to programs that are supplied with source code. The hash totals are those of the assembled programs.
- 2 This patch was not shipped to the general public. It was generated for the benefit of our European Customers. It disables a feature in TXTFMT where a back-slash would be translated to a forward slash if it was encountered in column one of the .TXT file.
- 3 Hashes used with this monitor patched were generated with the MONHSH utility.
- 4 Hashes can not be verified due to the numerous permutations of boards and ports that can be used. Be careful with these.

The following patches should be installed on all 1.3(123) Systems:

SPN Program	NHASH	Where Found
153 AM364L.IDV ⁴	N/A	Mailed to subscribers
154 AM316L.IDV ¹	153-750-603-747	Mailed to subscribers
161 AMOSL.MON ³	216-216-002-036	Mailed to subscribers
162 LOKGEN	750-151-463-751	Mailed to subscribers
163 RUN	347-420-471-445	Mailed to subscribers
165 AM62.TDV ¹	244-242-267-774	Mailed to subscribers
167 TRIT25.DVR	021-716-745-775	Available to Trident Users
168 TRIT50.DVR	434-321-330-144	Available to Trident Users
169 TRIT80.DVR	374-364-636-113	Available to Trident Users
170 TRI300.DVR	415-413-147-754	Available to Trident Users
171 RUN	302-120-265-574	Mailed to subscribers
172 AMOSL.MON ³	366-350-202-240	Mailed to subscribers
175 TXTFMT	300-056-332-140	Mailed to subscribers
177 SUBMIT	073-552-607-475	Mailed to subscribers
180 RUN	603-447-554-347	Mailed to subscribers
194 AM62A.M68	020-070-536-235	Mailed to subscribers

- 1 These patches are changes to programs that are supplied with source code. The hash totals are those of the assembled programs.
- 2 This patch was not shipped to the general public. It was generated for the benefit of our European Customers. It disables a feature in TXTFMT where a back-slash would be translated to a forward slash if it was encountered in column one of the .TXT file.
- 3 Hashes used with this monitor patched were generated with the MONHSH utility.
- 4 Hashes can not be verified due to the numerous permutations of boards and ports that can be used. Be careful with these.

The following patches should be installed on all 1.3I(125) Systems:

SPN	Program	NHASH	Where Found
153	AM364L.IDV ⁴	N/A	Mailed to subscribers
154	AM316L.IDV ¹	153-750-603-747	Mailed to subscribers
162	LOKGEN	750-151-463-751	Mailed to subscribers
163	RUN	347-420-471-445	Mailed to subscribers
165	AM62.TDV ¹	244-242-267-774	Mailed to subscribers
167	TRIT25.DVR	021-716-745-775	Available to Trident Users
168	TRIT50.DVR	434-321-330-144	Available to Trident Users
169	TRIT80.DVR	374-364-636-113	Available to Trident Users
170	TRI300.DVR	415-413-147-754	Available to Trident Users
171	RUN	302-120-265-574	Mailed to subscribers
173	AMOSL.MON ³	771-447-340-042	Mailed to purchasers of VME/A-XP Systems and Published in AMSD Journal Vol 8 #4
175	TXTFMT	300-056-332-140	Mailed to subscribers
177	SUBMIT	073-552-607-475	Mailed to subscribers
180	RUN	603-447-554-347	Mailed to subscribers
186	FIX420	613-767-345-502	Mailed to subscribers and Published in AMSD Journal Vol 8 #6
187	XXXCRT	707-617-326-140	Mailed to subscribers
194	AM62A.M68	N/A	Mailed to subscribers

- 1 These patches are changes to programs that are supplied with source code. The hash totals are those of the assembled programs.
- 2 This patch was not shipped to the general public. It was generated for the benefit of our European Customers. It disables a feature in TXTFMT where a back-slash would be translated to a forward slash if it was encountered in column one of the .TXT file.
- 3 Hashes used with this monitor patched were generated with the MONHSH utility.
- 4 Hashes can not be verified due to the numerous permutations of boards and ports that can be used. Be careful with these.

The following patches should be installed on all 1.3A(125) Systems:

SPN Program	NHASH	Where Found
153 AM364L.IDV ⁴	N/A	Mailed to subscribers
154 AM316L.IDV ¹	153-750-603-747	Mailed to subscribers
162 LOKGEN	750-151-463-751	Mailed to subscribers
163 RUN	347-420-471-445	Mailed to subscribers
165 AM62.TDV ¹	244-242-267-774	Mailed to subscribers
167 TRIT25.DVR	021-716-745-775	Available to Trident Users
168 TRIT50.DVR	434-321-330-144	Available to Trident Users
169 TRIT80.DVR	374-364-636-113	Available to Trident Users
170 TRI300.DVR	415-413-147-754	Available to Trident Users
171 RUN	302-120-265-574	Mailed to subscribers
174 AMOSL.MON ³	760-345-532-025	Mailed to purchasers of VME/A-XP Systems and Published in AMSD Journal Vol 8 #4
175 TXTFMT	300-056-332-140	Mailed to subscribers
177 SUBMIT	073-552-607-475	Mailed to subscribers
180 RUN	603-447-554-347	Mailed to subscribers
186 FIX420	613-767-345-502	Mailed to subscribers and Published in AMSD Journal Vol 8 #6
187 XXXCRT	707-617-326-140	Mailed to subscribers
194 AM62A.M68	N/A	Mailed to subscribers

- 1 These patches are changes to programs that are supplied with source code. The hash totals are those of the assembled programs.
- 2 This patch was not shipped to the general public. It was generated for the benefit of our European Customers. It disables a feature in TXTFMT where a back-slash would be translated to a forward slash if it was encountered in column one of the .TXT file.
- 3 Hashes used with this monitor patched were generated with the MONHSH utility.
- 4 Hashes can not be verified due to the numerous permutations of boards and ports that can be used. Be careful with these.

The following patches should be installed on all 1.3B(151) Systems:

SPN Program	NHASH	Where Found
165 AM62.TDV ¹	244-242-267-774	Mailed to subscribers
167 TRIT25.DVR	021-716-745-775	Available to Trident Users
168 TRIT50.DVR	434-321-330-144	Available to Trident Users
169 TRIT80.DVR	374-364-636-113	Available to Trident Users
170 TRI300.DVR	415-413-147-754	Available to Trident Users
175 TXTFMT	300-056-332-140	Mailed to subscribers
188 AMOSL.MON	363-476-066-334	Mailed with Release Notes Mailed to subscribers and Published in AMSD Journal Vol 8 #7
194 AM62A.M68	N/A	Mailed to subscribers
198 CRT415	621-735-323-732	Mailed to subscribers
202 AM350M.MIC	576-047-325-746	Mailed to subscribers
204 ISAM.SYS	543-737-617-777	Mailed to subscribers
205 ISMBLD	362-136-436-145	Mailed to subscribers
206 ISMDMP	115-630-252-334	Mailed to subscribers
207 ISAM.SYS	610-223-175-410	Mailed to subscribers
208 ISMBLD	141-560-574-157	Mailed to subscribers
209 ISMDMP	107-622-766-267	Mailed to subscribers

- 1 These patches are changes to programs that are supplied with source code. The hash totals are those of the assembled programs.
- 2 This patch was not shipped to the general public. It was generated for the benefit of our European Customers. It disables a feature in TXTFMT where a back-slash would be translated to a forward slash if it was encountered in column one of the .TXT file.
- 3 Hashes used with this monitor patched were generated with the MONHSH utility.
- 4 Hashes can not be verified due to the numerous permutations of boards and ports that can be used. Be careful with these.

The following patches should be installed on all 1.0(154) Systems:

SPN Program	NHASH	Where Found
210 ISAM.SYS	110-366-132-274	Mailed to Subscribers
211 ISMBLD	161-620-107-420	Mailed to Subscribers
212 ISMDMP	074-066-662-113	Mailed to Subscribers

Patches to Special Purchase Software

The following patches should be installed on AlphaWRITE 1.1(174):

SPN Program	NHASH	Where Found
113 WRT170.OVR	314-074-721-631	Mailed to subscribers
132 WRITE	746-061-302-336	Mailed to subscribers
133 WRT120.OVR	263-466-440-321	Mailed to subscribers
149 WRT150.OVR	377-564-360-012	Mailed to subscribers
157 WRT170.OVR	543-705-703-677	Mailed to subscribers
159 WRT150.OVR	010-250-562-137	Mailed to subscribers

The following patches should be installed on AlphaWRITE 1.1A(174):

158 WRT170.OVR	062-322-722-255	Mailed to subscribers
160 WRT150.OVR	321-444-337-510	Mailed to subscribers
164 WRITE	370-036-521-531	Mailed to subscribers
166 WRT170.OVR	351-752-764-307	Mailed to subscribers

Patches to be installed on the pre 1.3 Version of AlphaCALC 1.1(134):

136 CALC	457-465-012-050	Mailed to subscribers
151 CALC	713-747-035-572	Mailed to subscribers
155 CALC	374-274-101-506	Mailed to subscribers

Patches to be installed on the post 1.3 Version of AlphaCALC 1.1(134):

152 CALC	267-526-374-302	Mailed to subscribers
156 CALC	605-765-145-442	Mailed to subscribers

Patches for AlphaACCOUNTING Subroutines Version 1.4B:

107 PRINT.SBR	052-062-565-447	Mailed to subscribers
122 INPUT.SBR	427-631-054-224	Mailed to subscribers

Patches to AlphaMATE:

125 TOWS	241-770-512-015	Mailed to subscribers
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Patches to AlphaC:

179 PTCH	323-744-060-260	Mailed to subscribers
214 M681.OVR	123-402-234-006	Mailed to subscribers

Patches for AlphaWRITE Version 1.2(196):

181	WRT100.OVR	035-616-404-111	Mailed to Subscribers
182	WRITE	715-401-136-260	Mailed to Subscribers
183	WRT170.OVR	555-641-377-742	Mailed to Subscribers
184	WRT200.OVR	206-032-620-055	Mailed to Subscribers
191	WRT170.OVR	364-306-153-410	Mailed to Subscribers
192	WRT150.OVR	165-650-755-743	Mailed to Subscribers
194	AM62A.TDV	020-070-536-235	Mailed to Subscribers
203	WRITE.LIT	006-306-735-553	Mailed to Subscribers
213	WRT150.OVR	746-233-404-301	Mailed to Subscribers

Patches to AlphaCALC Version 1.2(150):

185	CALC	547-423-535-521	Mailed to Subscribers
195	CALC	527-441-574-227	Mailed to Subscribers
196	ALC270.OVR	240-222-742-311	Mailed to Subscribers
215	CALC	264-102-714-177	Mailed to Subscribers

Patches to MULTI Version 1.0(140):

193	WINDOW.TDV	564-125-415-471	Mailed to Subscribers
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3.1.10 AM-1013 on AMOS/L 1.3B

The AM-1013 ports of the AM-1003 expansion terminal interface for the AM-1000 products has a problem functioning using AMOS/L Version 1.3B System Software. Due to an administrative mix-up, the micro code and the interface driver for the AM-1013 ports are mismatched.

If you have recently upgraded to AMOS/L 1.3B System software on your AM-1000 product and are experiencing problems using AM-1013 I/O ports, the problem may be resolved by installing the previous version of the micro code.

The micro code is contained in the file

AM1013.MIC located on DSK0: in account [1,6]. The previous version of the micro code has a hash total of:

AM1013.MIC 540-335-312-306

This is the only other version and may be found with any AMOS/L System release tape from 1.0(46) to either of the 1.3I tapes.

To correct the problem, install this version of the AM1013.MIC file into 1,6 of your system disk and then re-boot the machine.

SECTION III - SOFTWARE

3.0 AMOS/L Operating System

3.1 AMOS/L Releases

- 3.1.1 Software Release 1.0A
- 3.1.2 Using AlphaBASIC under AMOS/L 1.1
- 3.1.3 AlphMENU
- 3.1.4 Trident "L" Software Release.
- 3.1.5 1.2 No Boot
- 3.1.6 1.3 Copyright Message and Graphics
- 3.1.7 New AlphaBASIC Error Code [4/86]
- 3.1.8 Negative Substring Modifiers in AlphaBASIC [MAY 1986]
- 3.1.9 Phoenix No Boot with AMOS/L 1.3 (Article 2.4.26 Cross Referenced in Hardware Volume, Section II, Disk Controllers and Disk Drives, 2.4 AM-410. [July 1986])
- 3.1.10 AM-1013 on AMOS/L 1.3B [Sept/Oct 1986]

3.2 AMOS/L Patches

3.2.1 Implementing Patches for an AMOS/L System

3.2.2 Patches

PTCH.LIT	-	SPN-001L-00
AMOSL.MON	-	SPN-002L-01
RUN.LIT	-	SPN-003L-02
PRINT.LIT	-	SPN-005L-00
WRMGEN.LIT	-	SPN-006L-00
ISAM.SYS	-	SPN-007L-01
ISMBLD.LIT	-	SPN-008L-01
ISMDMP.LIT	-	SPN-009L-01
DSKANA.LIT	-	SPN-010L-00
ISAM.SYS	-	SPN-011L-02
ISMBLD.LIT	-	SPN-012L-01
ISMDMP.LIT	-	SPN-013L-01
LABEL.LIT	-	SPN-014L-00
VUE.LIT	-	SPN-015L-00
XEBDVR.DVR	-	SPN-016L-01
XLOCK.SBR	-	SPN-017L-00
AMSORT.SYS	-	SPN-018L-00
SORT.LIT	-	SPN-019L-00
CRT420.LIT	-	SPN-020L-00
DSKPAK.LIT	-	SPN-021L-00
610DVR.DVR	-	SPN-022L-00
RUN.LIT	-	SPN-023L-00
210DVR.DVR	-	SPN-024L-00
SCNWLD.SYS	-	SPN-025L-00
CRT410.LIT	-	SPN-026L-00
TRM.DVR	-	SPN-027L-00
RUN.LIT	-	SPN-028L-00
ISMBLD.LIT	-	SPN-029L-01
ISAM.SYS	-	SPN-030L-01
AM100L.M68	-	SPN-032L-00

SECTION III - SOFTWARE (CONT.)

AM120.M68 - SPN-033L-00
PRINT.SBR - SPN-034L-00
SPOOL.SBR - SPN-035L-00
BASORT.SBR - SPN-036L-00
INPUT.SBR - SPN-037L-00
COPY.LIT - SPN-038L-00
FLOCK.SBR - SPN-039L-00
SET.LIT - SPN-040L-01
AM310.IDV - SPN-041L-00
SPOOL.SBR - SPN-042L-00
ISAM.SYS - SPN-043L-00
ISMBLD.LIT - SPN-044L-00
AM60.TDV - SPN-045L-00
RUN.LIT - SPN-049L-00
SYSACT.LIT - SPN-051L-00
AM6X.TDV - SPN-110L-00

3.2.3 Patches to the AMOS/L System

3.2.4 Patches to AMOS/L

3.2.5 Software Patch Notice: [4/86]

AMOSL.MON - SPN-173L-01 and

AMOSL.MON - SPN-174L-01

3.2.6. Patches to AMOS/L (Update #3) [May 1986]

3.2.7 Bitmap Size Change to 5 1/4" 70 Megabyte Fujitsu Drive
With Patch to FIX420.LIT SPN-186L-00 [6/86]

3.2.8 AMOS/L 1.3B Monitor Patch [July 86]

3.2.9 Patches to AMOS/L (Update #4) [Sept/Oct 1986]

3.2.10 Hash Total Generation [Sept/Oct 1986]

3.3 AMOS/L Utilities

3.3.1 MOUNT.LIT Update

3.3.2 ISAM and LOKSER

3.3.3 Upgrades and Updates.

3.3.4 AMOS Installation Program

3.3.5 Current Defined TCRT Codes (1.2)

3.3.6 ISAM and Illegal Record Numbers

3.3.7 ISAM: Calculating the Number of Empty Index Boxes

3.3.8 Floating Point and AlphaBASIC

3.3.9 ISAM/LOKSER - Tutorial (Part I)

3.3.10 ISAM/LOKSER - Tutorial (Part II)

3.3.11 ISAM/LOKSER - Tutorial (Part III) [4/86]

3.3.12 ISAM/LOKSER - Tutorial (Part IV) [5/86]

3.3.13 ISAM/LOKSER - Tutorial (Part V) [6/86]